



35 /Appeal
Brief
8/28/03

In re application of:

ROBIN M. MILLER

Serial No.: 09/090,071

Filed: June 3, 1998

For: HEADS-UP DISPLAY WITH IMPROVED CONTRAST

Attorney Docket No.: LUTA 0177 PUS (11567)

Group Art Unit: 2674

Examiner: Nguyen, Kevin M.

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SUPPLEMENTAL APPEAL BRIEF III UNDER 37 C.F.R. § 1.192

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U.S. Patent & Trademark Office
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Alexandria, VA 22313-1450

Sir:

This Supplemental Appeal Brief III is in support of an appeal from the final rejection of claims 18 and 20 in the final Office Action mailed on July 14, 2003.

I. REAL PARTY IN INTEREST

The real party in interest is Lear Automotive Dearborn, Inc., a corporation organized and existing under the laws of the state of Delaware, and having a place of business at Southfield, Michigan, as set forth in the assignment recorded in the U.S. Patent and Trademark Office on July 9, 1999 at Reel 010061, Frame 0393.

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as first-class mail, postage pre-paid, in an envelope addressed to: Mail Stop Appeal Brief, Patents, Commissioner for Patents, U.S. Patent & Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 on

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II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to the Applicant, the Applicant's legal representative, or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 18 and 20 (reproduced for reference in the attached Appendix) are pending in this application and are on appeal.

IV. STATUS OF AMENDMENTS

No amendments have been made after the final Office Action.

V. SUMMARY OF THE INVENTION

As generally described on page 2, lines 1-18; page 4, line 20 through page 6, line 7; and FIGS. 3A and 3B of the Applicant's disclosure, the claimed invention includes a system and a method for controlling the contrast of a vehicle heads-up display (HUD) (36) displayed onto a windshield (22) of a moving vehicle (20) relative to an environmental image (30, 34, 42) approaching the vehicle. The system and method capture the image of the environment approaching the vehicle. The system and method then improve the contrast of the HUD in response to the captured environmental image by selecting an appropriate pattern (36, 44) for the HUD dependent upon the captured environmental image.

In some situations, there are environmental factors that affect the visibility or clarity of the HUD. For example, as illustrated in the drawings, the visibility of the HUD

displayed on the interior surface of the windshield may be affected, for instance, by environmental images produced by a gravel road (34) (FIG. 3A) or elongated crops (42) (FIG. 3B), or by an approaching vehicle such as a large red truck (37) (FIG. 2B). The system and method compensate for these environmental factors in order to improve the contrast of the HUD relative to these environmental factors by controlling the pattern of the HUD dependent upon the environmental factors.

For example, in the case of an environmental image produced by a gravel road (34), the pattern of the HUD may be selected to be elongated bars (36) in order to improve the clarity of the HUD relative to the gravel road. (See page 5, lines 16-20; and FIG. 3A of the Applicant's disclosure.) Similarly, in the case of an environmental image produced by elongated crops (42), the pattern of the HUD may be selected to be dots (44) in order to improve the clarity of the HUD relative to the elongated crops. (See page 5, lines 21-23 and FIG. 3B of the Applicant's disclosure.)

VI. ISSUE

The Examiner finally rejected claims 18 and 20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,576,724 issued to Fukatsu et al. ("Fukatsu") and JP 2-227340 issued to Kadomuki et al. ("Kadomuki"). The issue on appeal is whether Fukatsu in view of Kadomuki makes a *prima facie* showing of obviousness of claims 18 and 20.

VII. GROUPING OF CLAIMS

Claims 18 and 20 stand or fall together.

VIII. ARGUMENT

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

1. Background of the Claimed Invention

As described on page 1, lines 1-17 of the Applicant’s specification, a HUD is directed onto the windshield of a vehicle in order to display information for a vehicle operator. Information typically displayed by the HUD is the speed of the vehicle. As the HUD is displayed onto the vehicle windshield, the background of the HUD includes the oncoming surroundings of the vehicle. For instance, the background of the HUD includes the road, trees, sky, other vehicles, etc., ahead of the vehicle, i.e., the background of the HUD is the scene viewed by the vehicle operator as the vehicle operator looks through the windshield ahead of the vehicle.

In some situations, there may be an arrangement of environmental factors in the background that make the HUD difficult for the vehicle operator to see or distinguish from the background. For example, the visibility of the HUD be affected by a background produced by a gravel road (34) (FIG. 3A) or elongated crops (42) (FIG. 3B). As such, if the HUD is formed with the same or similar fill pattern as the pattern of the background, then the HUD may be difficult for the vehicle operator to view.

2. *The Claimed Invention*

The claimed invention, as recited in independent claims 18 and 20, is a vehicle display system and method which provide a HUD onto a windshield of a moving vehicle. A control arrangement controls the contrast of the HUD relative to an environmental image approaching the moving vehicle. To this end, the control arrangement captures the environmental image approaching the moving vehicle, determines texture or structural features of the environmental image, and controls the contrast of the HUD in response to the texture or structural features of the environmental image approaching the moving vehicle. Specifically, to control the contrast of the HUD, the control arrangement selects an appropriate fill pattern for the HUD dependent upon the texture or structural features of the environmental image in order to contrast the HUD relative to the environmental image.

Independent claim 18 recites that a fill pattern for the HUD is selected dependent upon the determined texture (or structural features as recited in independent claim 20) of the environmental image in order to contrast the HUD relative to the environmental image. Support for these limitations is found on FIGS. 3A and 3B; and page 2, lines 1-5 and lines 10-18; page 4, lines 7-13; and page 4, line 20 through page 5, line 6; page 5, line 16 through page 6, line 7 of the Applicant's specification.

As such, the claimed invention compensates for texture and structural features of the environmental image in order to improve the contrast of the HUD relative to the environmental image by controlling the fill pattern of the HUD dependent upon the texture and structural features of the environmental image. For example, in the case of a gravel road environmental image (34), the fill pattern of the HUD may be selected to be elongated bars (36) in order to improve the clarity of the HUD relative to the gravel road. Similarly, in the case of an elongated crop environmental image (42), the fill pattern of the HUD may be

selected to be dots (44) in order to improve the clarity of the HUD relative to the elongated crops.

3. Fukatsu and Kadomuki

In the final Office Action, the Examiner posited that Fukatsu teaches the claimed invention with the exception teaching that the control arrangement selects an appropriate fill pattern for the HUD dependent upon the texture of the environmental image in order to contrast the HUD relative to the environmental image. The Examiner posited that Kadomuki teaches a HUD including the symbol (B) for selecting an appropriate fill pattern (citing figs. 2-5 and pages 9-10 of Kadomuki) for the HUD dependent upon the landscape, the trees, and the road information in order to contrast sufficiently between the respective colors of the landscape, the trees, and the road information relative to a background (citing figs. 7-8 and 10; and page 13, line 17 through pages 14-15 of Kadomuki).

In the advisory action mailed on August 6, 2003, the Examiner indicated that Fukatsu is relied upon for teaching to control the contrast of the HUD relative to an environmental image (B) approaching a moving vehicle (citing figs. 4-5; and col. 6, lines 4-45); and Kadomuki is relied upon for teaching a symbol control arrangement selecting an appropriate fill pattern for the HUD dependent upon the texture/structural features such as landscape, trees, road surface, in order to contrast the background (citing figs. 2-5 and pages 10-12 of Kadomuki).

As described in more detail below, the Applicant respectfully traverses the Examiner's position that Kadomuki teaches or suggests the symbol control arrangement selecting an appropriate fill pattern for the HUD dependent upon the texture/structural features of the background or environmental image.

4. The Claimed Invention Compared to Fukatsu and Kadomuki

The claimed invention generally differs from any combination of Fukatsu and Kadomuki in that the control arrangement selects a fill pattern for the HUD dependent upon texture or structural features of the environmental image in order to contrast the HUD relative to the environmental image (see FIGS. 3A and 3B of the Applicant's disclosure). As such, the claimed invention controls the contrast of the HUD relative to the texture and structural features of the environmental image by selecting a fill pattern for the HUD which contrasts to the texture and structural features. Neither Fukatsu nor Kadomuki teach or suggest selecting a fill pattern for the HUD dependent upon the texture or structural features of the environmental image in order to contrast the HUD relative to the environmental image.

Specifically, Kadomuki does not teach or suggest selecting a fill pattern for a HUD which contrasts to the texture and structural features of an environmental image. Kadomuki generally teaches changing the method for displaying an information symbol (i.e., the HUD) in accordance with status of the observed forward field (i.e., the environmental image) so that the HUD can be identified by an operator regardless of the observed forward field status. (See pages 2-8 of Kadomuki.)

Fig. 2 and pages 9-10 of Kadomuki teach changing the display position of the symbol in the case where the color of the symbol is similar to the color of the portion of the forward field of vision that constitutes a background for the symbol. See also "(C): Symbol display position shift direction" in Fig. 2 of Kadomuki.

Fig. 3 and pages 10-11 of Kadomuki teach changing the color of the symbol in the case where the color of the symbol is similar to the color of the portion of the forward field of vision that constitutes a background for the symbol. See also "(C): Symbol color change" in Fig. 3 of Kadomuki.

Fig. 4 and page 11 of Kadomuki teach changing the display position of the symbol in the case where the brightness of the symbol is similar to the brightness of the portion of the forward field of vision that constitutes a background for the symbol. See also "(C): Symbol display position shift direction" in Fig. 4 of Kadomuki.

Fig. 5 and pages 11-12 of Kadomuki teach changing the brightness of the symbol in the case where the brightness of the symbol is similar to the brightness of the portion of the forward field of vision that constitutes a background for the symbol. See also "(C): Symbol brightness change" in Fig. 5 of Kadomuki.

Figs. 6-10 and pages 13-15 of Kadomuki teach accurately positioning a symbol (such as symbols A, B, and C) on the forward field of vision as the forward field of vision changes due to vehicle movement of Kadomuki.

In contrast to controlling the display position, color, or brightness of an HUD dependent upon the color or brightness of a background environmental image, the claimed invention controls the fill pattern of the HUD dependent upon determined texture or structural features of the environmental image.

As such, as opposed to determining the color or brightness of an environmental image as disclosed by Kadomuki, the claimed invention determines the texture or structural features of the environmental image. The word "texture" is defined at www.dictionary.com as being "the distinctive physical composition or structure of something, especially with respect to the size, shape, and arrangement of parts." The word "structure" is defined at www.dictionary.com as being "something made up of a number of parts that are held or put together in a particular way." These definitions comport with the above-mentioned gravel road and elongated crops examples disclosed by the Applicant. Again, Kadomuki does not teach

or suggest determining the texture or structural features of an environmental image as disclosed and claimed as Kadomuki determines the color or brightness of the environmental image.

Further, as opposed to controlling the display position, color, or brightness of a HUD in order to control the contrast of the HUD relative to an environmental image as disclosed by Kadomuki, the claimed invention selects a fill pattern for the HUD dependent upon the texture or structural features of the environmental image in order to control the contrast of the HUD relative to the environmental image. The word "pattern" is defined at www.dictionary.com as being a "consistent, characteristic form, style, or method, as: a composite of traits or features characteristic of an individual or a group." This definition comports with the above-mentioned gravel road and elongated crops environmental image examples in which the fill patterns for the HUD are elongated bars and dots, respectively. Again, Kadomuki does not teach or suggest controlling the contrast of a HUD by selecting a fill pattern for the HUD as disclosed and claimed as Kadomuki controls the display position, color, and brightness of the HUD.

Therefore, the claimed invention is patentable under 35 U.S.C. § 103(a) over Fukatsu and Kadomuki as neither of these references, alone or in combination, teach or suggest selecting an appropriate fill pattern for a HUD dependent upon the texture or structural features of an environmental image in order to contrast the HUD relative to the environmental image.

IX. SUMMARY

In view of the foregoing, the Applicant respectfully requests that the Appeal Board rule that independent claims 18 and 20 patentably distinguish under 35 U.S.C. § 103(a) over Fukatsu and Kadomuki.

The Applicant has previously paid the required Notice of Appeal and Appeal Brief fees during the appeal proceedings of an Appeal Brief filed on December 8, 2000. In response to this Appeal Brief, the Examiner reopened prosecution. Accordingly, and in reference to M.P.E.P. §1208.02, it is understood that "whether Appellant elects to continue prosecution or to request reinstatement of the Appeal, if prosecution was reopened prior to a Decision on the Merits by the Board of Patent Appeals and Interferences, the fee paid for the Notice of Appeal [and] Appeal Brief...will be applied to a later Appeal on the same application" (modifications added).

As such, the Applicant has not included any fees for this Appeal Brief. If the Applicant is incorrect in the calculation of fees due in connection with the filing of these papers, the Commissioner is authorized to charge any additional fees or credit any overpayments as a result of the filing of this and paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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Date: August 14, 2003

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Attachment: Appendix

APPENDIX

18. A vehicle heads-up display system comprising:
a source for providing a heads-up display onto a windshield of a moving vehicle;
and
an arrangement for controlling the contrast of the heads-up display relative to
an environmental image approaching the moving vehicle, wherein the arrangement includes
an optical detector for capturing the environmental image approaching the moving vehicle and
a control coupled to the optical detector for determining texture of the environmental image
and for controlling the contrast of the heads-up display in response to the texture of the
environmental image approaching the moving vehicle; and
wherein the control arrangement selects an appropriate fill pattern for the
heads-up display dependent upon the texture of the environmental image in order to contrast
the heads-up display relative to the environmental image.

20. A method of providing a heads-up display comprising the steps of:
(a) providing a system for directing a heads-up display onto the windshield
of a moving vehicle;
(b) directing a heads-up display onto the vehicle windshield; and
(c) controlling the contrast of the heads-up display relative to an
environmental image approaching the moving vehicle, wherein the steps of controlling includes

the step of capturing the environmental image approaching the moving vehicle, the step of determining structural features of the environmental image, and the step of controlling the contrast of the heads-up display in response to the structural features of the environmental image by selecting an appropriate fill pattern for the heads-up display dependent upon the structural features of the environmental image in order to contrast the heads-up display relative to the environmental image.